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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ho-II Oh

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EXAMINER

MUI, GARY

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

07/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/691,378	Applicant(s) OH ET AL.	
	Examiner GARY MUI	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 14, 2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 7,180,910 B2; hereinafter “Kim”) in view of Shi et al. (US 7,245,628 B2; hereinafter “Shi”).

For claims 1 and 5; Kim teaches selecting a minimum bandwidth guaranteed for individual services requested by the ONUs from among an overall available bandwidth, and allocating the minimum bandwidth to the ONUs; if a current available bandwidth is found in the overall available bandwidth after allocating the minimum bandwidth to the ONUs sending the bandwidth request signal, allocating bandwidths requested by the ONUs when the sum of the bandwidths requested by the ONUs is lower than the current available bandwidth, determining new request bandwidths associated with the ONUs upon receiving magnitude and weight information of individual queues from the ONUs when the sum of the bandwidths requested by the ONUs is higher than the current available bandwidth, and performing bandwidth allocation in proportion to the determined request bandwidths (see column 2 lines 1 – 40, column 3 lines 18 – 30, and column 4 line 29 – 43; each ONU is allocated a fixed bandwidth and if there is additional bandwidth to allocated that bandwidth based on traffic descriptors and the amount of cells waiting in the ONU; the traffic descriptors are updated for dynamic bandwidth allocation where the traffic descriptors are updated from the state information). Kim fails to explicitly teach the weight information being representative of a priority associated with a service class specified by the ONU. Shi from the same field of

endeavor teaches the use of an evaluation function for bandwidth allocation where the weight of the ONU used in the calculation. Therefore, it would have been obvious to one skilled in the art to use the weight information as taught by Shi into Kim. The motivation for doing this is to have a more efficient system by lowering the delay and jitter. Kim and Shi also fail to explicitly teach a GE-PON system, however Kim teaches the bandwidth allocation in an ATM-PON environment. It would have been obvious to one skilled in the art at the time the invention was made to use GE-PON in place to the ATM-PON as taught by Kim. The motivation for doing this is to increase the rate and the performance of the system.

For claims 2 and 6, Kim et al. teaches allocating bandwidths requested by individual queues when an available bandwidth allocated by the OLT is larger than the sum of request bandwidths of individual queues sending the bandwidth request signal, and allocating a minimum guarantee bandwidth according to priority information of the service classes when the available bandwidth is less than the sum of request bandwidths of individual queues; and applying weights of individual service classes to a remaining bandwidth created by allocation of the minimum guarantee bandwidth within the available bandwidth, determining new request bandwidths associated with the queues according to the weights of the service classes, and allocating the remaining bandwidth in proportion to the determined request bandwidths (see column 2 lines 1 – 40 and column 4 lines 30 – 42; each ONU is allocated bandwidth and bandwidth is also assigned based on traffic descriptors; the state information of each ONU is also used to assign bandwidth; the traffic descriptors are updated for dynamic bandwidth allocation where the traffic descriptors are updated from the state information). Kim fails to explicitly teach the weight information being representative of a priority associated with a

service class specified by the ONU. Shi from the same field of endeavor teaches the use of an evaluation function for bandwidth allocation where the weight of the ONU used in the calculation. Therefore, it would have been obvious to one skilled in the art to use the weight information as taught by Shi into Kim. The motivation for doing this is to have a more efficient system by lowering the delay and jitter. Kim and Shi also fail to explicitly teach a GE-PON system, however Kim teaches the bandwidth allocation in an ATM-PON environment. It would have been obvious to one skilled in the art at the time the invention was made to use GE-PON in place to the ATM-PON as taught by Kim. The motivation for doing this is to increase the rate and the performance of the system.

For claims 3 and 7, Kim et al. teaches a) allocating bandwidths requested by individual queues when an available bandwidth allocated by the OLT is larger than the sum of request bandwidths of individual queues sending the bandwidth request signal, and allocating a minimum guarantee bandwidth according to priority information of the service classes when the available bandwidth is less than the sum of request bandwidths of individual queues; and b) firstly allocating a bandwidth to a queue having the largest request bandwidth in a prescribed range of a remaining bandwidth created by allocation of the minimum guarantee bandwidth within the available bandwidth, and finally allocating a bandwidth to a queue having the smallest request bandwidth after sequentially allocating bandwidths to other queues (see column 2 lines 1 – 40 and lines 4 lines 30 – 42; each ONU is allocated bandwidth and with excess bandwidth it is allocated based on traffic descriptors and state information of the ONU to meet the Quality of Service (QoS) requirements; the traffic descriptors are updated for dynamic bandwidth allocation where the traffic descriptors are updated from the

state information). Kim fails to explicitly teach the weight information being representative of a priority associated with a service class specified by the ONU. Shi from the same field of endeavor teaches the use of an evaluation function for bandwidth allocation where the weight of the ONU used in the calculation. Therefore, it would have been obvious to one skilled in the art to use the weight information as taught by Shi into Kim. The motivation for doing this is to have a more efficient system by lowering the delay and jitter. Kim and Shi also fail to explicitly teach a GE-PON system, however Kim teaches the bandwidth allocation in an ATM-PON environment. It would have been obvious to one skilled in the art at the time the invention was made to use GE-PON in place to the ATM-PON as taught by Kim. The motivation for doing this is to increase the rate and the performance of the system.

For claims 4 and 8, Kim et al. teaches allocating bandwidths requested by individual queues when an available bandwidth allocated by the OLT is larger than the sum of request bandwidths of individual queues sending the bandwidth request signal, and allocating a minimum guarantee bandwidth according to priority information of the service classes when the available bandwidth is less than the sum of request bandwidths of individual queues; and firstly allocating a bandwidth to a queue having the highest priority in a prescribed range of a remaining bandwidth created by allocation of the minimum guarantee bandwidth within the available bandwidth, determining new request bandwidths associated with the remaining queues according to weights of individual service classes, and performing bandwidth allocation in proportion to the determined request bandwidths (see column 2 lines 1 – 40 and lines 4 lines 30 – 42; each ONU is allocated bandwidth and with excess bandwidth it is allocated based on traffic descriptors and state information of the ONU to meet the Quality of

Service (QoS) requirements; the traffic descriptors are updated for dynamic bandwidth allocation where the traffic descriptors are updated from the state information). Kim fails to explicitly teach the weight information being representative of a priority associated with a service class specified by the ONU. Shi from the same field of endeavor teaches the use of an evaluation function for bandwidth allocation where the weight of the ONU used in the calculation. Therefore, it would have been obvious to one skilled in the art to use the weight information as taught by Shi into Kim. The motivation for doing this is to have a more efficient system by lowering the delay and jitter. Kim and Shi also fail to explicitly teach a GE-PON system, however Kim teaches the bandwidth allocation in an ATM-PON environment. It would have been obvious to one skilled in the art at the time the invention was made to use GE-PON in place to the ATM-PON as taught by Kim. The motivation for doing this is to increase the rate and the performance of the system.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sala et al. (US 2003/0007508 A1) is cited to show a dynamic bandwidth allocation method considering multiple services in Ethernet passive optical network system.

7. **Examiner's Note:** Examiner has cited particular paragraphs or columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references

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in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Mui whose telephone number is (571) 270-1420. The examiner can normally be reached on Mon. - Thurs. 9 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit
2616

/Gary Mui/

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